

# Instructions for Supplemental Permit Application Form

## UNIT EMISSIONS

(Instructions for completing DEP-AIR-APP-212)

---

All applicants for a permit for a stationary source, as defined in Section 22a-174-1 of the Regulations of Connecticut State Agencies (RCSA), must complete the appropriate supplemental application forms to provide information to quantify the emissions from each source or point of emissions which makes up that stationary source.

This supplemental application form must be completed to provide emission rates of *each* unit. You must also attach all calculations by which emissions were determined. *Please complete a separate form for each unit.* (you may reproduce this form as necessary.) Complete each item as appropriate. If a particular item does not apply to your situation mark it N/A (not applicable). If additional space is needed to answer a question stated in the application, attach separate sheets as necessary, clearly identifying the applicant name, form name and item number, and unit number.

*Attach all calculations by which emissions were determined.*

Note: Provide maximum uncontrolled potential and maximum proposed actual emissions. **These figures will be used to define the operating limits in your permit.**

---

### Section I: General Information

1. *Unit Number* - Identify the reference or unit number assigned to the unit for which emissions are being calculated. Use the same numbering system that was used in completing Part I: Application and Source Type of the form *Permit Application for New Source Review Stationary Sources of Air Pollution* (DEP-AIR-APP-200). Please use a consistent reference number for each unit throughout the application package. Note, please complete a separate form for each unit.
2. *Stack Number* - Identify the reference number assigned to the stack from which the unit is emitting through. If there is more than one stack that the unit is vented to, please complete one form per stack, as well as per unit. Use the same numbering system that was used in completing Section I of the form *Air Pollution Control Equipment* (DEP-AIR-APP-210). Please use a consistent reference number for each stack throughout the application package.

3. *Control Equipment Reference Number, if applicable* - Identify the reference number(s) assigned to each distinct piece of control equipment which is vented to the stack. Use the same numbering system that was used in completing Section I of the form *Air Pollution Control Equipment* (DEP-AIR-APP-210). Please use a consistent reference number for each distinct piece of control equipment throughout the application package.

### Section II: Stack Emission Information for Listed Pollutants

*(Fugitive emission information should be excluded from this Section since this information will be captured in Section IV.)*

Note: Stack emissions refer to the release or discharge of air pollutants into the ambient air from a source point, including a pipe, duct, or flare. If the exhaust point discharges indoors, use the building exhaust nearest the unit in completing this form.

1a-c. *Stack Emission Rate* - The maximum uncontrolled emission rate is defined as the rate of *emissions* from the unit, determined before the application of air pollution control equipment, unless the unit is incapable of operating without such control equipment, operating at maximum rated capacity. Maximum rated capacity is defined as the unit's design maximum hourly capacity, or highest demonstrated hourly capacity, whichever is greater, multiplied by 365 days per year and 24 hours per day.

For each pollutant listed, if emitted from the unit specified in Section I of this form, please indicate the maximum uncontrolled potential and maximum proposed actual emission rates in pounds per hour and tons per year, or other typical measurement units as *may* be required by regulation. If using other measurement units, please specify the measurement units used in column 1c. Classification of volatile organic pollutants as either volatile organic compounds or exempt volatile organic compounds shall be consistent with the definition of "volatile organic compound" found in RCSA Section 22a-174-1.

Maximum uncontrolled potential emissions must be *calculated* as if the emission unit operated at maximum rated capacity for 8760 hours per year without control equipment, unless the maximum rated capacity is limited or conditioned by a federally enforceable construction permit. Then the maximum uncontrolled potential emissions would be the allowable limit in your construction permit.

Maximum proposed actual emissions must be calculated taking into account emission limitations such as: the use of control equipment and the manufacturer's guaranteed control efficiency; seasonal use; any physical limitation on the process; or, any restriction on production rates, hours of operation, or raw material usage. These

limitations will be included as conditions in your permit.

1d. *Basis* - Indicate the basis for determining the listed *emission* rates, e.g., mass balance, EPA emission factors, stack test data, engineering estimate, special emission factors, etc.

### Section III: Stack Emissions of Hazardous Air Pollutants

*(Fugitive emission information should be excluded from this Section since this information will be captured in Section V.)*

1. *Hazardous Air Pollutants* - In column 1, specify each *hazardous air pollutant that is emitted from the unit specified in Section I of this form*. Hazardous air pollutants are listed in RCSA Section 22a-174-29.

2a-d. *Emission Rate* - In columns 2a through 2d, for each *hazardous* air pollutant that is emitted from the unit specified in Section I of this form, please indicate its maximum uncontrolled potential and maximum proposed actual emission rates in pounds per hour, tons per year and micrograms per cubic meter ( $\text{F g/m}^3$ ), or other typical measurement units as may be required by regulation, e.g., parts per million per volume (ppmv). If using other measurement units, please specify the measurement units used in column 2d. Also indicate the maximum allowable emission rates in micrograms per cubic meter ( $\text{F g/m}^3$ ).

Maximum uncontrolled potential emissions must be calculated as if the emission unit operated at *maximum* rated capacity for 8760 hours per year without control equipment, unless the maximum rated capacity is limited or conditioned by a federally enforceable construction permit. In that case, the maximum uncontrolled potential emissions would be the allowable limit in your construction permit.

Maximum proposed actual emissions must be calculated taking into account emission limitations such as: the use of control equipment and the manufacturer's guaranteed control efficiency; seasonal use; any physical limitation on the process; or, any restriction on production rates, hours of operation, or raw material usage. These limitations will be included as conditions in your permit.

A maximum allowable stack concentration (MASC) must be calculated for each hazardous air pollutant that *will* be emitted and is listed in Tables 29-1, 29-2 or 29-3 of RCSA Section 22a-174-29. The equations for this calculation can be found in RCSA Section 22a-174-29. Note: For each hazardous air pollutant, the proposed actual stack concentration must be less than the MASC.

To compute concentration in F g/m<sup>3</sup>, convert lb/hr by using the following formula:

$$\begin{aligned} & \text{(emission rate in lb/hr)} \\ & \quad \times \\ & \text{(1/minimum actual flow rate in ft}^3\text{/min)} \\ & \quad \times \\ & \text{(453.59x10}^6\text{ F g/lb)} \\ & \quad \times \\ & \text{(1 hr/60 min)} \\ & \quad \times \\ & \text{(35.314 ft}^3\text{/m}^3\text{)} = \text{Emission Rate in F g/m}^3 \end{aligned}$$

- e. *Basis* - Indicate the basis for determining the *listed* emission rates, e.g., mass balance, EPA emission factors, stack test data, engineering estimate, special emission factors, etc.

#### Section IV: Fugitive Emissions of Listed Pollutants

Note: Fugitive emissions refer to fugitive dust or those emissions which can not reasonably pass through a stack, chimney, vent, or other functionally equivalent opening. Characterization of your fugitive emissions is important. For each pollutant, a mass balance

approach must be used in which any amount of the pollutant which cannot be accounted for in stack emissions, manifests of waste materials, etc., is considered fugitive emissions.

- 1a-c. *Fugitive Emission Rate* - For each pollutant listed, if fugitive emissions of the pollutant are emitted from the unit specified in Section I of this form, please *indicate* the maximum uncontrolled potential and maximum proposed actual emission rates in pounds per hour and tons per year, or other typical measurement units as may be required by regulation. If using other measurement units, please specify the measurement units used in column 1c. Classification of volatile organic pollutants as either volatile organic compounds or exempt volatile organic compounds shall be consistent with the definition of "volatile organic compound" found in RCSA Section 22a-174-1.

Maximum uncontrolled potential emissions must be calculated as if the emission unit operated at maximum rated capacity for 8760 hours per year without control *equipment*, unless the maximum rated capacity is limited or conditioned by a federally enforceable construction permit. Then the maximum uncontrolled potential emissions would be the allowable limit in your construction permit.

Maximum proposed actual emissions must be calculated taking into account emission limitations such as: the use of control equipment and the manufacturer's guaranteed control efficiency; seasonal use; any physical limitation on the process; or, any restriction on production rates, hours of operation, or raw material usage. These limitations will be included as conditions in your permit.

- 1d. *Basis* - Indicate the basis for determining the listed emission rates, e.g., mass balance, EPA emission factors, *stack* test data, engineering estimate, special emission factors, etc.

- 1e. *Assumptions* - List all assumptions made in determining fugitive emission rates.

## Section V: Fugitive Emissions of Hazardous Air Pollutants

Note: Fugitive emissions refer to fugitive dust or those emissions which can not reasonably pass through a stack, chimney, vent, or other functionally equivalent opening.

Characterization of your fugitive emissions is important. For each pollutant, a mass balance approach must be used in which any amount of the pollutant which cannot be accounted for in stack emissions, manifests of waste materials, etc., is considered fugitive emissions.

1. *Hazardous Air Pollutants* - In column 1, specify each *hazardous* air pollutant that is emitted from the unit specified in Section I of this form. Hazardous air pollutants are listed in RCSA Section 22a-174-29.
- 2a-d. *Emission Rate* - In columns 2a through 2d, for *each* hazardous air pollutant that is emitted from the unit specified in Section I of this form, please indicate its maximum uncontrolled potential and maximum proposed actual emission rates in pounds per hour, tons per year and micrograms per cubic meter ( $\text{F g/m}^3$ ), or other typical measurement units as may be required by regulation, e.g., parts per million per volume (ppmv). If using other measurement units, please specify the measurement units used in column 2d. Also indicate the maximum allowable emission rates in micrograms per cubic meter ( $\text{F g/m}^3$ ).

Maximum uncontrolled potential emissions must be *calculated* as if the emission unit operated at maximum rated capacity for 8760 hours per year without control equipment, unless the maximum rated capacity is limited or conditioned by a federally enforceable construction permit. Then the maximum uncontrolled potential emissions would be the allowable limit in your construction permit.

Maximum proposed actual emissions must be calculated taking into account emission limitations such as: the use of control equipment and the manufacturer's guaranteed control efficiency; seasonal use; any physical limitation on the process; or, any restriction on production rates, hours of operation, or raw material usage.

A maximum allowable stack concentration (MASC) must be *calculated* for each hazardous air pollutant that will be emitted and is listed in Tables 29-1, 29-2 or 29-3 of RCSA Section 22a-174-29. The equations for this calculation can be found in RCSA Section 22a-174-29. Note: For each hazardous air pollutant, the proposed actual stack concentration must be less than the MASC.

To compute concentration in  $\text{F g/m}^3$ , convert lb/hr by using the *following* formula:

$$\begin{aligned} & \text{(emission rate in lb/hr)} \\ & \quad \times \\ & \text{(1/minimum actual flow rate in ft}^3\text{/min)} \\ & \quad \times \\ & \text{(453.59} \times 10^6 \text{ F g/lb)} \\ & \quad \times \\ & \text{(1 hr/60 min)} \\ & \quad \times \\ & \text{(35.314 ft}^3\text{/m}^3\text{)} = \text{Emission Rate in F g/m}^3 \end{aligned}$$

- 2e. *Basis* - Indicate the basis for determining the listed emission rates, e.g., mass balance, EPA emission factors, stack test data, engineering estimate, special emission factors, etc.